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ABSTRACT

This report summarizes the preliminary findings of the Educational Policy Research Center in the area of alternative future histories and analyzes the implications for educational policy. The analysis is based on the overall finding of the study that "of some 40 feasible future histories, there are very few that manage to avcid a period of serious trouble between now and 2050" and on the conclusion that "the paramount educational task for the developed world is the altering of the dormant basic premises, perceptions, images, and values ['pathogenic premises'] of the industrialized culture and that the paramount task for the nation is the development of a sense of purpose and unity in facing the problems and opportunities of the future." The extensive analysis of the direction which seems required (if the undesirable alternative futures--of which half are highly authoritarian states--are to be avoided) is organized according to six major tasks: (1) make a direct attack on aspects of the "world macroproblem"; (2) control technological development and application; (3) alter values, perceptions, and premises; (4) establish a new sense of national purpose; (5) meet the educational demands of varied groups; and (6) educate for coping with an uncertain future. Each task is analyzed in terms of its implications for the following areas of education: new conceptualizations, research and development, institutions, educational environments, program content and resources, and processes. Radical innovation seems essential. (JES)

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ALTERNATIVE FUTURES AND EDUCATIONAL POLICY

The preliminary work of the Educational Policy Research Center resulted in a preliminary set of alternative future histories, which have been reported on in a separate set of documents. This memorandum report summarizes those findings and suggests implications for educational policy that derive from them. The report must be considered to be tentative and preliminary, both because the alternative future histories are as yet unrefined and because the examination for policy implications is a relatively cursory one.

Precis of the method of constructing alternative future histories

We seek to describe alternative futures because it is impossible to predict a single most probable course of evolution for the world or for any significant part of its human component. A useful set of bracketing descriptions of what may come to be must be schematically commensurate with what actually will emerge. That is, each projected alternative must be (insofar as imagination and skill can make it so) an internally consistent whole, as the real future will be; each must merge aspirations and the more mundane considerations of feasibility, and each must evolve partly because of purposive efforts and partly because of forces beyond the reach of conscious desires.

In a major portion of our work we explored the kinds of futures that might come to pass purely on the basis of "self-consistent" sets of economic, political, technological, and demographic variables. The prime emphasis fell on plausible structural interlinkages in the society (i.e.,

a booming free enterprise economy is more likely to support vigorous research and development than a depressed economy).

The first step of this analysis was to choose a minimal descriptive framework for the society (six aspects with five or six alternative patterns for each, covering the likely range of variation) and to examine which of the possible combinations (one pattern in each of six aspects, some 20,000 in all) would be internally self-consistent and likely to occur by the year 2000. Next these were examined to see which could plausibly occur in sequence. Continued re-examination of the set of plausible sequences as a whole, to eliminate remaining inconsistencies and to cover missed possibilities, resulted in the "tree" of alternative future histories shown in Figure 1.* The "branch points" in this tree are of particular significance since they identify crucial choices between alternative futures.

We have not explored some kinds of conceivable futures because they seem either so unlikely as to be dismissed, or the routes to them involve such catastrophic events that no one will be concerned about educational policy. Thus, for example, we have no future representing the return of the United States to a primitive agrarian society and none in which whole sectors of the land must be abandoned to man-made pollution. As is evident from the figure, we have emphasized what is plausible, with lesser emphasis on what is possible, and still less on what is only conceivable.

Examination of the prose descriptions of the various "year 2000" alternative states showed that they tended to differ in two especially

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* A fuller description of the work summarized in this section is available in a report entitled Contingent United States Patterns, 1970 to 2000 by Russell Rhyne (Johnson Research Associates Report RM 69-3; December 1969).

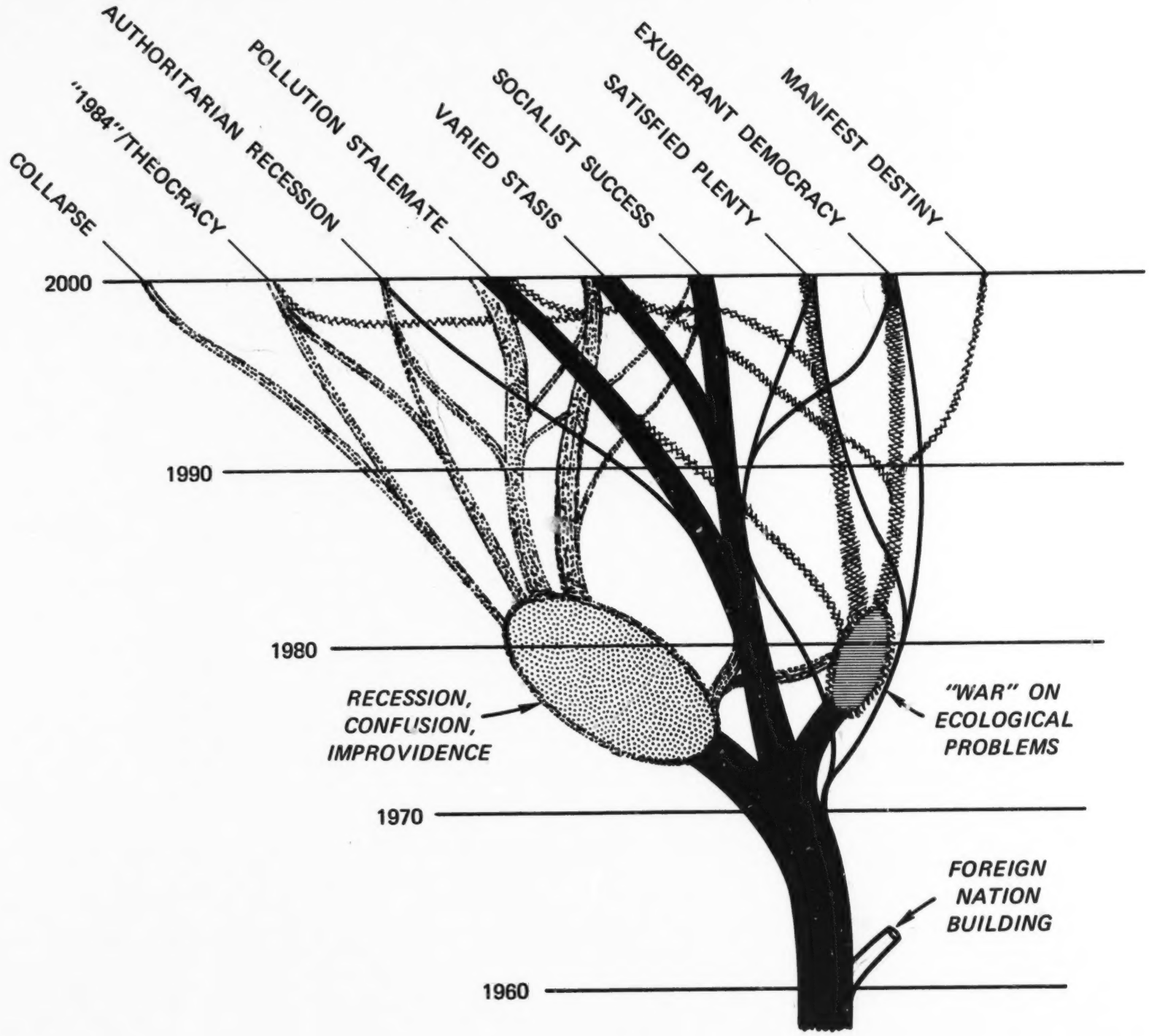

FIGURE 1 "TREE" OF ALTERNATIVE FUTURE HISTORIES

significant dimensions. One concerns the degree to which the society is adept (both competent and motivated) at achieving its undertaken goals. The other relates to the degree of "openness," which implies flexibility, accessibility, and decentralized decision-making. A representation of the "year 2000" slice of the tree shown in Figure 1, with the alternative future states arrayed in these two dimensions, is given in Figure 2.

The results presented here, to repeat, must be considered tentative and preliminary. The skeletal alternative future histories need to be detailed in various ways to provide richer descriptions. Prevailing value-belief systems in the different paths need to be examined and stakeholder-group dynamics at the branching points assessed. The whole needs to be recycled and adjusted until overall consistency is ensured.

The abbreviated names assigned to the different paths in Figure 1 are meager descriptions at best and may even be misleading. Thus, the reader should be hesitant about concluding anything on the basis of the sparse content of these two diagrams alone. For example, the path labeled "Exuberant Democracy" is characterized by a mood of exuberant expansiveness, a high degree of confidence in the economy and the political system, an ability of the United States to project its influence throughout the world, an actively questing science, and an expanding technology. Identifications with the culture and the nation are positive and proud, and horizons are seen to be unlimited. Americans and their government are extroverted and confident in their dealing with other nationals and nations. However, it seems very unlikely that this state of affairs could come about without an all-out national effort on ecosystems problems (including amelioration of poverty within and outside the nation) of a magnitude approaching that of World War II and with similar unification of national will, launched no later than 1975-80.

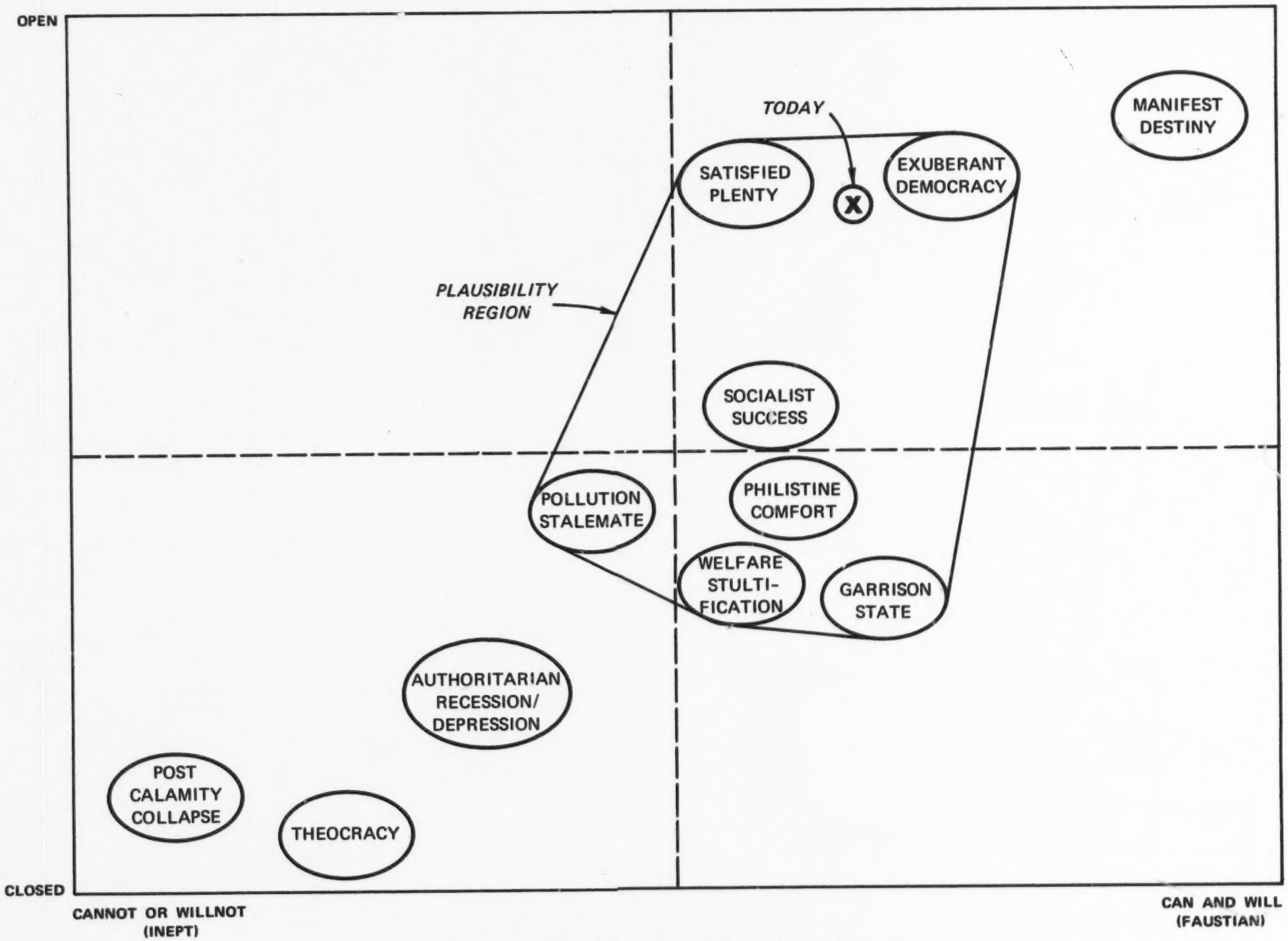

FIGURE 2 "SLICE" OF FIGURE 1 AT YEAR 2000

It is also probable that the solution to these problems could entail considerable encroachment on individual freedoms, and there would be significant impingement on the quality of life. Furthermore, if this state has been reached through a successful "Green Revolution" in agriculture, thus avoiding widespread famine in the underdeveloped world, population levels are likely to be such as to have resulted in a very fragile ecosystem balance; the prognosis for the decades beyond 2000 entails probable catastrophe within another half century.

It appears from Figure 1 that unless some such overriding goal as a "war on ecological problems" serves to unite the increasingly fractionated nation, a path representing an undesirable future history is all too likely. To succeed in causing the state of society to follow one of the more desirable right-hand paths, such an effort would have to have a sufficiently large scope to touch the lives of most Americans (beyond its reflection in their taxes). It would need to focus public action for a sustained rather than a spasmodic effort, to mobilize resources enough to make obvious progress, and to engender sufficient mutual trust and commitment to enable joint action on a mass scale.

A significant overall conclusion

On the whole, it looks as though of some 40 feasible future histories, there are very few that manage to avoid some period of serious trouble between now and 2050. The few that do, appear to require a dramatic shift of values and perceptions with regard to what we came to term the "world macroproblem."

This macroproblem will be the predominant concern of the foreseeable future for all the alternative paths. It is the composite of all the problems that have been brought about by a combination of rampant technology application and industrial development, together with high

population levels (in turn, a consequence of technology-reduced mortality rate). These fall mainly into three groups:

- Problems of the ecosystem (ecological imbalances, fouling of the environment, resource depletion, overpopulation and consequent famine and plague in underdeveloped regions).

- An intrinsically expanding "have-have not" gap (domestically and between nations, with resulting internal and external dissension).

- Technological threats (weapons of mass destruction; vulnerability of a complex society to sabotage; new capabilities for "engineering" the human body, mind, foetus, and genetic transmission; threats to privacy and individual rights; and mental stress of complex living).

Of critical importance is the type of response that society makes to these problems. Although terms like "environment" and "ecology" have entered the political rhetoric, we have not yet begun to take the world macroproblem seriously. Even among the informed public, there is a pronounced tendency to be naively confident that:

- New technological breakthroughs will be achieved that will enable us to control pollution.

- The "Green Revolution" in agriculture will solve the world food problem.

- Technological breakthroughs in contraception will take care of the population explosion.

- The deterrence policy will continue to preserve the world from the horrors of nuclear warfare.

- International controls will adequately protect against small nation development and use of biological weapons.

- The right programs for urban problems will begin to reduce the severity of the problems of racism in the nation.

- The drastically fallen world image of America, from the hope of the oppressed to the imperialist oppressor, is a regrettable consequence of our involvement in the Vietnamese conflict and can be righted by our finding a satisfactory way to extricate ourselves from that situation.

- As soon as the Vietnam war is over, we will begin to make steady progress on the serious social and environmental problems that beset us.

- By supplying capital and American "know-how" to the underdeveloped nations, we will begin to close the "have-have not" gap, which poses a continuing threat to world peace, or that the gap can be safely allowed to increase.

- As available supplies of physical resources--such as fresh water, fossil fuels, and minerals--are used up, technological breakthroughs will provide substitutes.

- As per capita energy usage continues to rise and conventional power sources (hydroelectric, fossil fuels) approach limits, technological breakthroughs will result in new energy sources (efficient solar cells, nuclear fusion processes with no side radioactive contaminants) that will fill the demands.

As our work has progressed, the above expectations look less and less credible. Rather, the various aspects of the world macroproblem are appearing more and more like surface manifestations of a pathogenic condition lying beneath the surface. This inference was suggested by the projections of alternative futures, wherein it seemed that desirable future histories were scarce and in any case entailed significant changes in operative values. It appeared again as we attempted to analyze how the world had reached its present state, and found that it seemed to be implicit in the premises of present forms of the technological-industrial state, awaiting only suitable levels of population and technological application to become intolerable. The hypothesis showed up once again as we grappled with the significance of contemporary revolutionary forces and found that the crucial gap is not that between generations, nor

between liberals and conservatives, but between those who anticipate a continuation of present trends and those who insist that a drastic change is absolutely necessary.

This concept of pathogenic premises underlying the world macroproblem is, admittedly, a loose one. It is intended to connote that certain aspects of the prevailing (whether explicit or implicit) premises are problem-generating; in other ways they may produce useful consequences. For example, at one time the premise that black persons are subhuman contributed significantly to a thriving agricultural economy in the South. Few today, however, would doubt that it was also pathogenic. Similarly, premises that contributed significantly to our present industrial and technological accomplishments may have pathogenic aspects with present population levels and technological powers. Among these are the following:

- The premise that the pride of families, the power of nations, and the survival of the human species all are to be furthered (as in the past) by population increase.

- The "technological imperative" that any technology that can be developed, and any knowledge that can be applied, should be.

- The premise that the summed knowledge of experts constitutes wisdom.

- The reductionist view of man, a premise associated with the development of contemporary science, that lends sanction to dehumanizing ways of thinking about and treating man.

- The premise that men are essentially separate, so that little intrinsic responsibility is felt for the effects of present actions on remote individuals or future generations.

- The premise that man is separate from nature, and hence that nature is to be exploited and controlled rather than cooperated with.

- The "economic man" image, leading to a system of economics based on ever-increasing GNP, consumption, and expenditure of irreplaceable resources.

- The premise that the future of the planet can safely be left to autonomous nation-states, operating essentially independently.

- The disbelief that "what ought to be" is a meaningful concept and is achievable.

If we are correct in this tentative belief that the various aspects of the world macroproblem, although they may be ameliorated or postponed by certain technological achievements, are intrinsic in the basic operative premises of present industrialized culture--if this is correct, then it follows that education toward changing those premises, directly or indirectly, is the paramount educational task for the nation and for the world. This means that education should be directed toward responsible stewardship of life on earth with the associated changes in values and premises. It probably includes adaptation to a new and evolving metaphysic that will support these changes (since values are always rooted in an implicit picture of man-in-relation-to-his-world) and calls for a new alliance between education and law enforcement to help us through a time of troubles to come.

We do not pretend that these conclusions are demonstrated. We do claim, however, that if further analysis substantiates this interpretation of our situation, no other educational issues can compare with these in long range importance. Changing our values and premises is not just a good thing--it is a necessity.

Uses of the set of alternative future histories

Before going on to describe the policy implications that emerge from the tentative set of alternative future histories, let us comment briefly on the kinds of uses to which such a set can be put.

In the first place, the future histories provide alternative contexts within which proposed policy can be tested and within which plans can be

developed. Policy-makers would like to know how present policy choices will look from the vantage point of 10 to 20 years hence, but this clairvoyant knowledge of the future is lacking. In the absence of that knowledge, representative plausible alternative futures provide a reasonable vantage point. For example, as indicated in Figure 1, through 1985 there appears to be three main clusters of alternative paths. One goes through a "slough of despond" characterized by loss of confidence and national will, together with economic depression or dithering improvidence. The second path is a projection, more or less, of present trends, with impulses toward economic and cultural growth somewhat predominating over those tending toward chaos or stultification. The third is dominated by an all-out determination to solve the major problems of the ecosystem. An educational planner would be wise to try to live imaginatively in all three of these alternative futures. If his plans seem reasonable in all three, well and good. If they do not fit one, he will be particularly interested in monitoring specific "early warning" social indicators for signs that history might be taking that path.

Each alternative line of future evolution implies distinctive kinds of opportunities and constraints. For example, if the "war on ecological imbalances" stem were to emerge as the actual future, the evolving educational system would probably emphasize national coherence, skills training for the national effort, and a holistic ecosystem view of the biosphere. It would be embedded in a prosperous economy, and although the needs of the overarching national commitment would come first, the per capita resources for schools and educational personnel would probably be as great as, or greater than, at present. Either a technological or a person-centered emphasis might conceivably dominate the early years of the national effort; in the end a balance between the two would probably emerge.

If, on the other hand, the future history turned out to be one of those passing through the "slough of despond," the educational system would have much different forces operating on it. This condition might be brought about by any of a number of circumstances, such as a stubborn adherence to antique economic principles, an impatient grasp for piecemeal ecological solutions, attempted forms of cultural pluralism for which the populace were not yet prepared, or a pattern of affluence for which the needed technical productivity had not yet developed. In any event, the condition would be one of scarce resources and high anxiety levels as regards self protection and self support. In a world of hardship and chaos, there would be little sympathy for educational approaches more suitable to affluent order.

The second type of use of the analysis of alternative futures is in designing policy to increase the likelihood of avoiding undesirable future histories and of bringing into being a desirable one. For example, in the detailed examination of the paths depicted in Figure 1, the very few futures that look attractive are contingent on a "war on ecological problems" (as previously noted). We have already discussed some of the implications of engaging in such a "war" on a level that would provide adequate focus for a unification of national effort. It assumes a shift of values away from the hubris of exploiting and controlling nature in the service of the ever-expanding GNP and toward a somewhat more limited and controlled development and application of technology in the interest of improving the quality of life in a more fundamental sense. Various implications follow if a decision is made to direct education toward this side of this stem rather than the other less attractive ones.

Viewed in this light, the "tree" of alternative future histories provides a context for generating and examining a number of educational policy issues. From the definition of the world macroproblem with its

roots in seriously pathogenic premises, the allocation of educational resources--psychic, human, and economic--to the solution of that problem is of paramount concern. Because crucial branchings occur during the 1970s, it is on today's advanced students and young adults that a key responsibility will fall. Hence, the role of higher and adult education is of special significance. The challenge is posed to these institutions to generate new processes, new environments, and new basic premises, adapted to meeting the needs of this critical period. At all levels of education, the problem is presented of how to educate for roles that differ markedly from those in the past in their substance and in their demands for flexibility, openness, and complex understanding. The decade ahead will be a troubled one for schools, and one of the key questions will be whether education and law enforcement can together find creative approaches to problems relating to authority and civil order in educational establishments and among persons of student age.

Some of these issues will be discussed briefly in the remainder of this report.

Implications for educational policy

The set of future histories and the conclusions on which they are based are sketchy and tentative. However, acknowledging all the limitations, we can nonetheless set forth some educational policy implications that are suggested by these explorations.

The matrix shown in Figure 3 (see last page of report) will help to order this discussion. The headings along the top indicate various educational areas in which a given societal task may impact. The listings in the left column are major societal tasks suggested by the array of alternative future histories. Elements in the matrix indicate aspects

of the educational components of these societal tasks. The discussion below is arranged as though the matrix were being scanned horizontally.

In fact, the nature of the planning task suggests using a separate chart like Figure 3 for each major alternative stem. The following discussion is from the standpoint of fostering a "war on environmental problems" and avoiding the "slough of despond." This seems not only to be an eminently reasonable position, but also is directly in line with the President's 1970 State of the Union message. In general, we are trying to present a framework for thinking, rather than specific proposals for action.

1. Direct attack on the world macroproblem

If indeed the world macroproblem is as represented, its solution is the paramount societal task before us. Undoubtedly, a direct attack on specific aspects must be made. The implications of locating the roots of the problem in basic belief-and-value premises will be examined later.

1a. New conceptualizations required for dealing with the world macroproblem include preeminently that of the entire biosphere as a closed ecosystem in which human culture has become a significant part of the system. We need gross models for a homeostatic world ecological balance, and a long term strategy for reducing the "have-have not" gap within the nation and in the world.

A new concept of education is demanded that includes development of those attitudes conducive to survival of human civilization and an overall high quality of life. Training is especially needed in making that combination of reality perception and value judgment which Geoffrey Vickers has termed "appreciation," and in dealing with complex wholes--in viewing self and social situation in their full ecological, cultural, and historical context. This includes re-examination of possibly

pathogenic premises as discussed in 3a below. This kind of holistic view is not fostered by a kind of education in which knowledge is fragmented into isolated academic disciplines.

1b. The most urgent research task suggested directly by the alternative future histories is to establish the degree of seriousness of the world macroproblem. There can be no doubt as to the reality of the various aspects of the problem. Considerable disagreement among observers exists regarding the real urgency. It is not clear whether ecological aspects of the macroproblem, at least, can be solved in a straightforward way once national attention has been focused on the issues, or whether the situation is so desperate that nearly all conceivable scenarios beyond about 1990 are ones of collapse and disaster. These questions need to be answered.

One apparent policy move is to mobilize the education and research resources of the nation's universities for a massive, transdisciplinary, problem-centered approach on environmental, population, and antipoverty aspects. This is no simple matter. Our universities have little tradition of either multidisciplinary or problem-centered research or education. They are not equipped and do not train for looking at complex wholes, but rather tend to be enamored with technological cures for human problems.

Sociology in the university has significantly lessened its earlier emphasis on the semiphilosophical "humanities" approach in favor of an emphasis on techniques and empirical studies, based on a premise that man is a creature of his drives, habits, and social roles. In psychology, this view is likely to be even more explicit, with consciousness considered to be an inconsequential accompaniment to behavior governed by external stimuli and instinctive urges. Political science tends to focus on the processes by which public policies are made, and to show relatively little concern for their contents. Amid the measurement of attitudes,

population movements, organizational trends, and political behavior, and the modeling of society and governments, little attention is given to the historic questions relating to man--his condition and his destiny. Even less attention is given to the man-earth whole, to the politics of the biosphere.

This is simply to say that the nation's universities were not designed to perform problem-centered research for the society at large. If they are going to be so used, numerous aspects need re-examination and probable alteration, including reward system, departmentalized structure, subject-matter divisions, and operative values. The inadequacy of technoscientific values and premises to guide human affairs is a central issue. Thus, it is important to recognize that research funding given to universities to work on aspects of the world macroproblem could, in the absence of a thorough re-examination of basic premises and values, add to the problem rather than to its solution.

A second research task, also obvious and also following directly from the "tree" of future histories, is to design specific short term social indicators as "early warning" detectors to show along which "stem" society is trending over the period 1970-75. Such a research task could be a precursor to development of a more complete set of indicators for monitoring the state of society.

1c. The nature of the macroproblem, and the above remarks on the unsuitability of present university institutions and procedures for responding to it, suggest the desirability of fostering, in a few selected universities, creation of institutional forms suited to holistic research attacks on the overall problem (such as a Planetary Policy Research Center, either university-based or with multiuniversity support, or a macroproblem-solving research activity as a joint undertaking with a nonprofit research institute). The precedent of universities responding to defense research needs after World War II offers some guides and cautions.

Regarding the educational task, institutional innovations are needed to facilitate transdisciplinary, future-oriented, problem-centered studies.

1d. At all educational levels, educational environments are needed that foster comprehension of complex wholes and of specifics in total context, particularly of the biosphere and its elements in total historic-geographic context. This implies two things in particular. The effective environment needs to be extended outside the traditional classroom to include the entire life space of the student--the out-of-doors, the inner city, the social institutions, and the mass media. The attitudinal climate needs to be one that frees the student emotionally to struggle with problems for which there are not easy and specific solutions, to adjust to or cope with uncertainties, and to anticipate contingencies.

1e. In view of the world macroproblem, the foremost educational need is to train in ecological thinking and appreciation of human diversity from the primary grades. At all levels, there is a need for a holistic, future-oriented, transdisciplinary, problem-centered, change-oriented study of human problems, for an understanding of complex wholes and historic parallels. Equally needed at all levels is continuing study, with progressively more sophisticated conceptual tools, of the broad human questions of justice and equality of opportunity, of individual liberty to seek fulfillment, of local and world community, and of human dignity.

1f. The most obvious implication from the foregoing is that problem-centered education and inquiry training deserve far greater emphasis than they have had in the past. In particular, citizens of all ages need training in dealing with complex wholes and in applying common sense to "graspable pieces." This is not only to keep them from being at the mercy of demagogues, but also will keep them from feeling

impotent in the face of expertise, thus delegating the responsibilities of citizenship to "think tanks" and bureaucratic agencies. Among the promising educational processes for accomplishing these aims are simulation exercises and gaming and alternative-future exercises.

2. Control technological development and application

Like the first task, this is outside the domain of education proper; however, education can play a facilitating role. If the macoproblem is a consequence of population plus technology and would be present even if population were stabilized at present levels, it becomes clear that some form of control is required over technological development and application. Furthermore, this control, to be effective, would have to include not only this nation, but also the entire developed world.

Control from the top down is not effective unless there is also a widely shared belief in the desirability of such control. This belief does not exist at present. Only after we have educated ourselves to appreciate the necessity for such collaborative control will it become a feasible step to take.

2a. The world macroproblem demands new concepts of supranational organizations for environmental control, coordinated industrial development and poverty alleviation, and control of technological developments that can threaten individual rights or world stability (nuclear and biological weapons of mass destruction; biotechnology for altering the human body, mind, foetus, and genes; survillance devices). It seems apparent that nationalism has to be supplemented by a concept of planetary control organization, a central aim of which will be to foster the use of technology and industrialization in the service of a higher quality of life in a broad humanistic sense.

2b. Research into planetary management structures and techniques and large scale conflict resolution seems called for.

2c. The need for new supranational organizations that have sufficient delegated power to accomplish their essential tasks is mentioned above. Education planning organizations and educational networks covering the industrialized world may be needed eventually to help prepare for taking planetary responsibility.

2d. In addition to educational environments mentioned in other sections of this discussion, special attention might be paid to internships and similar arrangements for gaining experience with supranational deliberations (e.g., in UN, NATO, OECD, UNESCO, and international business corporations).

2e. Development of holistic courses in planetary history-geography-ecology, supranational organizations, conflict resolution, regional and planetary management, etc., is obviously relevant.

2f. Comments under 6.e and 6.f given below apply here.

3. Alter values, perceptions, and premises

As discussed earlier in the section entitled "pathogenic premises," the world macroproblem will not be solved by top-down control of population and technology alone; specific changes in basic premises, perceptions, and values will be required. In particular, emotional and intellectual awarenesses are needed of the ineluctable fact that we are one race, on one planet, with total responsibility for the future of both. Some sets of operative values are compatible with the fulfillment of man's potential and the achieving of a high quality of life; others are not.

Undertaking this task implies the engagement of emotional and conative, as well as cognitive, faculties. It is not enough that we be

intellectually aware that nationalism is now a suicidal course, or that values must be altered if the course of the increasing "have-have not" gap is to be reversed. If deeply held premises and values are to be re-examined for possible change, educational experiences must be contemplated that are akin to psychotherapy in that they aim at bringing the individual into closer touch with himself. In such inner exploration, he may discover a felt realization of the inevitability of one inseparable world, and a felt shift in his deepest personal values and most basic premises. This means seriously introducing into education what the recent editorializing about the "affective domain" was only hinting at. To be sure, the risk exists that this will not always be done with due respect for the individual's basic right not to be manipulated. However, this must be weighed against the other risks of not making such value re-examination a part of education.

3a. The major concept to be dealt with in this societal task is that of new pathogenic aspects of centuries-old cultural premises. Given the basic factor--increased domain of human control--which makes the future so different from the past, the paramount research and educational task is the re-examination of those premises, especially those which seem so self-apparent as to be beyond question.

A brief list of candidates for such re-examination was presented earlier. One in particular seems worth singling out for special attention. This is the premise that the "mechanomorphic" or machine-like view of man and his world (which has proven an extremely useful model for some purposes) is a necessary outcome of systematizing exploration of that world in an open-minded spirit of inquiry. Mechanomorphic implies the following characteristics:

- The assumption that the true way to know something is through objective examination.

- The trust in impersonal over humane bases for judgment in human problems--e.g., "the scientific method," chance (as in the draft lottery), legalisms, statistical frequency (viz. Kinsey), and so on.

- Narrowed range of appreciated experience--emphasis on rational-cognitive functioning and on manual-motor actions, with less significance attached to sensual, aesthetic, relational, mystical, affective, and reverential aspects of experience and to states of being and being-in-process.

- A devaluation of life as an art, of play, of rituals and festivals, of unfettered curiosity about the unexplored, and of activities that are not "useful."

- Absence of a deep feeling of being a part of nature and of the evolutionary life process.

3b. Two obvious research tasks follow from the preceding analysis of pathogenic premises and values. One has to do with the processes of change; the other with the question of what direction change should take.

The area of person-changing processes has been enthusiastically explored in recent years by social scientists and psychotherapists, by persons interested in executive development and organizational change, and by a mixed group of "humanistic psychologists" and participants in the "growth centers" movement. Further research is needed to systematize what has been learned and to explore forms appropriate to the structures and aims of formal education. Research is also necessary in the area of emotional and conative development of adults and children.

Among basic research tasks, the highest priority--in the light of the foregoing analysis--should be given to the possibility of developing what might be termed a new "moral science," supplementing the existent physical, biological, and social sciences. We use this term to indicate the possibility of a systematized and empirical body of knowledge relating to a natural, organismic base for an organized valuing process

within the human individual. It would, in effect, transfer the questions of the nature of the good life and the good society (for man on Earth) into the realm of empirical inquiry, somewhat as questions about wholesome (holy) diet were earlier transferred from the realm of religion to that of science. The beginnings of such a moral science may be represented in the works of such psychologists as Carl Rogers, Abraham Maslow, and Clare Graves. Other clues may be found in anthropological studies, in research in psychotherapy, and in recent research on altered states of consciousness. If such a moral science were to materialize, its survival value could be extraordinarily high. It could revolutionize much of educational thought and could markedly affect the society's goals for its educational institutions.

3c. A greater diversity of types of educational institutions are needed, both to encourage and facilitate experimentation with altering premises and values and to better match processes with types of children. Further discussion of this point will be presented in 5c.

3d. Educational environments for facilitating re-examination of basic premises, values, attitudes, and perceptions tend to be characterized by a nonevaluative, low-threat, open, permissive atmosphere, wherein individual perceptions and feelings assume at least as much importance as knowledge about values and beliefs, and wherein the individual feels safe in considering the possibility of change. A key element in the environment is the openness and nondefensiveness of the teacher or group leader. Clearly, to provide such environments in the formal school system implies significant departure from the traditional classroom and administrative patterns, as well as special teacher training.

If by "educational environment" we mean any deliberate attempt to increase knowledge and awareness and alter values, then much more than the public and private school systems is included. Using the word in

this expanded sense for a moment, it is interesting to consider what educational influences have produced the most significant impact on youth in the last decade. If we had the data available, we would likely find that the intended effect of schools ranked very low. (The prison-farm atmosphere, competitive examinations, and irrelevant makework of some inner-city schools has no doubt made considerable impact, but this was unintended.) Perhaps the two top-ranking influences would be the world-wide network of rock music radio stations and TV commercials. The role of the rock stations as a communication network for youth revolutionary forces throughout the developed world has been considerable. As we look toward technologies of the future, one in particular commands attention in this respect--electronic video recording (EVR). If these taped programs, selling for something like the present cost of a record album, are to supplant TV and rock records for the young (especially the latter as an evolutionary medium, for like rock records, EVR can be produced by a relatively low-capital company), they are of the greatest interest to those who would affect the minds of the young. This might well include the U.S. Office of Education and State Departments of Education.

3e. As is apparent from the above discussion, what characterizes education toward re-examination of premises and values is not so much content--which might cover a wide range of relevant material--but, rather, "upending" cognitive, perceptive, and evaluative experiences and opportunities conducive to "unlearning" to be free to adopt a new response pattern or perception. In spite of the fact that a great diversity of content can be adapted to this purpose, two types appear especially useful. One is the history and present experience of the individual himself. The second is the intellectual history of mankind, which is replete with examples of "obvious" and "self-evident" beliefs and perceptions that were either demonstrably (in retrospect) pathogenic or for other reasons were rejected by future generations.

3f. Processes are required that foster openness, authenticity, free exploration, and willingness to risk and that are supportive of the individual while he re-examines deeply held values, perceptions, and premises. As is noted in 3b above, much is known about such processes, although the systematization of such knowledge has not been adequate.

4. Establish a sense of national purpose

Although the precise historical reasons may not have been established, it is apparent that the nation is seriously fractionated and very likely is trending toward still further dissension. Today's youth deeply question the meaning of the nation's policies and apparent aims. A significant fraction of the population--largely minority groups and youth--have concluded that established authority on national and local levels is illegitimate--that is, it does not adequately represent their interests, and it is not based on trust, nor on a general consensus. "Middle Americans" are no longer silent about their complaints.

The world macroproblem will demand a national unity if it is to be solved--that is, if we are to avoid a drastically lowered overall quality of life. But on the other hand, the exigencies of the crisis could be the occasion for the nation's coming together with a new sense of common purpose and, in the process, reaffirming the original declared goals--that is, to bring a "new order" into the world for all mankind.

The alternative future histories make it clear that the decade ahead is likely to be one of considerable turmoil, with society sensing not only that fateful choices are being made, but also that its ability to plan and implement actions may be less adequate for the tasks required. Two things appear essential if the nation is to hold together during these trying times. One is a clear and compelling national purpose--

that is, to take responsibility for the future of the human race and the planet, and to make steady progress toward the goals of reducing injustice and preserving individual rights. The other is a determination to ensure that those goals are carefully guarded in the process of providing the necessary force to preserve order and lawfulness.

4a. Three concepts will aid education to make its best contribution in this area. They are:

- Education for coping with a troubled and uncertain future (see Task 6 below).
- Education to meet the educational demands of varied groups (see Task 5 below).
- Education toward a new national image, suggesting a new relationship between education and law enforcement.

The first two of these will be discussed presently. The third has to do with recognizing an area where education and law enforcement have a common task.

Among the most urgent tasks for this nation are the restoration of the image of America as a provider of moral leadership and as an advancer of civilization, the development of a sense of the legitimacy of established authority, and the commitment to preservation of those fragile and hard-won political institutions that have evolved within Western political tradition for the protection of individual rights and the fostering of liberty and justice. Within these broad boundaries are reform tasks for law enforcement agencies, the political leadership, and the policy as a whole. Also within these national tasks are some that can best be carried out by collaboration--at local, state, and federal levels--of law enforcement and educational agencies.

These latter tasks include increasing appreciation of the need to preserve and protect our democratic institutions, developing the image of the

law enforcement officer as impartial protector of individual rights and safety, educating citizens and communities to demand (and be willing to pay for recruitment and training of) a police force of exceptional character and ability, and increasing appreciation of the historical and worldwide uniqueness and significance of the founding of the United States.

The basic assumptions, values, and goals implicit in the nation's founding clearly fail to inspire the allegiance they did some generations ago. One reason for this is the widespread opinion, particularly among the young, that the nation has grossly failed to behave in accordance with them. A second reason is more deeply rooted and may partially account for the first. This is the widely held belief that modern science has shown to be a myth the fundamental premises implicit in the Western political tradition--that the universe has a moral order, discoverable by man; that man is, by virtue of his transcendental nature, endowed with reason, will, and a valid sense of value; that in some transcendental sense all men are created free and equal; that evolution and history are ultimately purposeful. In short, the metaphysic that supported the founding of the nation no longer prevails.

This presents a profound dilemma. The concept of a transcendental, choosing, ultimately responsible self is essential to the entire theory of democratic government. It underlies the assumption that the criminal is responsible for his act. It is basic to the assumption in the judicial process that the judge can meaningfully make a normative judgment. Significantly, the "new moral science" discussed in 3b above, insofar as it has been developed at this time, tends to reaffirm the metaphysic of the founders.

4b. Several areas of research emphasis are suggested by the above. We need to understand better the causes of the crisis in authority and of the rapidly rising dissidence over the past decade. Schools and

colleges will no doubt continue to be focal points for expressed dissent and discontent; the law has been weakened through a multiplicity of events, ranging from excessive tolerance of illegal rights infringements by radicals to enactment of unenforceable laws such as those relating to sexual practices and drug use. Given these two factors, research is needed on the problem of how to preserve an atmosphere conducive to learning in our secondary schools and colleges. Still another research task has to do with exploration of the ways in which educational and enforcement agencies can collaborate on tasks of concern to both.

The dilemma of the "displaced metaphysic" underscores the significance of research in the "new moral science," particularly in the area of altered states of consciousness. Because of the highly exploratory nature of this research, together with its extremely great potential importance, consideration should probably be given to a long term funding commitment with expectation of limited early payoff. Criteria for evaluating quality of research may have to be somewhat modified from those used in the behavioral science area in general, since it is intrinsic to these investigations that some of the implicit premises of conventional behavioral science research be challenged in the new exploratory work.

4c. All kinds of top-down efforts to generate a sense of national purpose are suspect among dissidents. Thus, it is well to be wary of institutionalizing the process. A national educational effort toward coherence and common purpose, largely outside the formal educational system, in connection with the forthcoming Bicentennial Celebration, would seem to be a promising approach.

Institutional collaboration between educational and law enforcement agencies was mentioned above.

4d. The discussion above suggests supplementation with educational environments outside the school such as legislative and judicial proceedings, police patrols, and research participation on aspects of the world macroproblem; also programs using teachers acting as sheriff's deputies, police performing teaching services, and so on.

4e. On the subject of relevant educational content, there is little to be added to what was previously stated.

4f. The same holds true of processes.

5. Meet the educational demands of varied groups

While working with the dynamics of the alternative future paths, we found it necessary to consider the interactions among four different major stakeholder groups in society. These four groups tend to have significantly different educational demands. Although there is no great precision in the grouping, the listing serves to highlight educational demands that are not being met:

1. The poor and disenfranchised

   Basic demand: To partake of the affluence of American society.

   Educational demands: Effective teaching of cognitive skills and development of achievement motivation that will facilitate obtaining satisfactory employment and inclusion in the mainstream of society.

2. Status-quo-oriented "middle America"

   Basic demand: Maintaining traditional values, preserving and ensuring security (economic and political).

   Educational demands: Conservatism, passing on the ideals of the past, competent teaching of traditional content.

3. Materialist/esteem-oriented

   Basic demand: Foster material and technical development of American society.

Educational demands: Technologically progressive but structured education; diversity of goals and processes; individualized learning opportunities for the gifted.

4. Humanistic, person-centered

Basic demand: Foster a world environment conducive to individual growth and community.

Educational demands: Open, pluralistic education to meet varied needs; expanded educational goals, areas of concern, and methods; divergent institutions and processes.

The schools tend to be geared to the demands of the second and third groups. Even here, evidence suggests that creative, imaginative thought tends to be stifled. The perception of the first and last groups that their educational needs are not being met is contributing significantly to current discontent and alienation.

5a. In the case of the first group, the poor, it is particularly important to place the problem in a broader context than just curriculum and teaching methods. To be poor is to be out of the mainstream not only economically but also in terms of political power and limited ability to control one's environment and future. Whatever the origins of the social syndrome of poverty, its characteristics of despair, hopelessness, powerlessness, and failure create expectations--in the poor themselves, in children and their teachers, and in those who come in contact with the poor--that tend to perpetuate the syndrome. Schools geared to middle-class, white-majority experiences and learning patterns engender frustrations in minority-group children that further reinforce the patterns.

Some experimental programs have been developed to eliminate these effects of negative expectations and middle-class learning environments. What has not changed, however, no matter what form of compensatory education is provided, is the underlying requirement placed on schools

by society to "sort out" the more capable from the less capable students on specific academic bases. When poor children accept the labels from the sorting process, and with them the grounds for assigning those labels, they end up as failures in their own eyes and in those of society. Even the best special programs can be of little help after the special situation ends, and sorting and labeling begins again.

Thus, some fundamental change seems called for with regard to the sorting and labeling function of the school and its interference with the educational function. This dual function has deep roots in the economic organization of the society, and any change will come slowly. In the short run, perhaps the pernicious effects of the sorting and labeling process can be counteracted by fostering in the child a disbelief that it affects his essential worth. Through support of the child as a person, apart from his competences or lack of them, he can be encouraged in his natural desires to learn about and make sense out of his environment, to play, and to grow. Such support is difficult because those who would teach children to "disbelieve" labeling and sorting must exist within the labeling and sorting system itself. The current demands for community control, or separate "community" schools, represent attempts to meet this problem.

This concept of the inherent conflict between the sorting and labeling and the educational functions of the schools has important application to current attempts to enforce racial integration in the schools to right an imbalance in educational opportunity. Racial mixing will accomplish little if the failure/success labels maintain the segregation at the classroom level.

The failure of education to meet the needs of the poor may profitably be viewed in the light of another conceptualization that has received wide acceptance in the field of psychotherapy. This is the concept of

unconscious intent. The idea is widely familiar that the accident-prone victim unconsciously intends his accidents, that the "unintended consequences" of the neurotic's acts are intended at an unconscious level. Extending the same principle to social problems suggests that a partial explanation for repeated failures in attempts to improve education for black ghetto youngsters may be sought in the unconscious intents and expectations of the white majority population.

A different kind of problem is posed by the alienation from educational institutions of the fourth group, the humanistically oriented segment. These are the youth who reject the materialist values and protest the psychological oppression of the establishment in favor of an outlook putting high value on the world of inner experience, the integrity of the individual, and the community. The "Great Refusal" has a number of faces, but one aspect is in essence a proposal to replace the type of basic premises that were earlier noted to be, in some sense, pathogenic. Furthermore, these replacement premises tend to be supported by a "New Age" metaphysic, which has some of its roots in Eastern religious philosophies. To the extent that "The Age of Aquarius" thrust represents a growing force toward the transformation of man and society, it deserves serious attention. Every educational policy decision, whether advertently or not, implicitly aids the "new reformation" or acts to suppress it. In such times, it may be particularly crucial to distinguish carefully between reforming and destructive forces, both of which may be somewhat uncomfortable to live with. Not only the preservation of civil order, but also the manner in which it is done, assumes unusual significance. If we are in the midst of a period of transition comparable to that of the Protestant Reformation in the depths to which it shakes the social institutions, then the issue becomes whether society can round the bend or is thrown off the tracks in the attempt.

5b. As indicated above, little is really known about the importance of racial mixing relative to other factors that may contribute to the difficulties of poor children in school. Research is badly needed to give a more definitive answer as to the relative effects on intellectual potentiality and achievement of such factors as nutrition of mother and infant, infant fondling, early childhood sensory experience, home emotional climate, primary level teaching methods, remedial measures, and so forth. From a cost-benefit standpoint, it appears that it could well turn out that the cost of seeing that mothers and infants are well fed and that mothers or surrogates can afford time to fondle their infants would be extremely cost-effective in the light of later social costs related to mental retardation and emotional and character disorders. These considerations suggest that, although the "right to read" is a significant political goal, as a research goal it may not lead to a sufficiently basic framing of the questions.

Turning to the demands of the humanist group, we see what may be the beginnings of a significant counter-culture movement in the new "free schools," where anti-establishment attitudes prevail, along with the "human potentialities" emphasis. The size and vocality of this group appears to be increasing rapidly. They protest, in particular, the rubricizing of human beings, the cult of expertise, and academic-intellectual "irrelevance."

The varied demands, and consequent discontents, of diverse groups strongly suggest the desirability of experimenting with new forms of educational institutions, and of taking a pluralistic approach with respect to educational structures, teacher training, curriculum, and educational processes.

5c. One way of accommodating these different demands is through a diversity of institutions, in some way made available at comparable cost to the user (e.g., through revenue sharing, voucher system). The use of public funds to allow the individual to obtain the kind of education he wants is a principle that appears to be growing in favor. It is clear that the dichotomies of church/state and religion/education are not nearly the straightforward matters they might earlier have seemed to be. The rise of the "new schools," "free schools," and "commune schools" has been termed a religious movement. There is probably a lesser discrepancy between the basic outlooks of parochial schools and traditional schools than there is between the more "behavior-shaping" and "contingency-management" oriented programs in the public school system and the more open, humanistically centered ones. Demand is increasing for schools where radical questioning can take place. Thus, it seems likely that the more basic issue of diversity in educational opportunity will force a reconsideration of past decisions regarding support of private and religious schools with public funds.

Vocational training is another aspect of education that will be subject to pressure for restructuring. Depending on how broad the definition of benefits is, cost-benefit arguments could undoubtedly be used to demonstrate a net gain for the society from any amount of general vocational skills training. This would be true if there were a high emphasis on self development, perhaps even more so than on conventional vocational training. Thus, it is more a political question than an economic one of how much of what kind of vocational education should be publicly supported. The more liberal the interpretation of the term, the more generalized the training, and the less it will be liable to attack from the left as "labeling-as-inferior" those who pursue it rather than the college track.

New institutional experiments are clearly needed for preschool education. Preschool training combined with day care for working mothers is a felt need of the poor.

At the other end of the time scale, pressure for restructuring of postsecondary education will continue. Because of increasing rapidity of job-skill obsolescence, and for other reasons, a concurrent and/or alternating arrangement of work and schooling is tending to replace the traditional sequential arrangement of learn-now work-later. The new generation is likely to demand an even more drastic restructuring of all organizations to facilitate a synthesis of mind-forming work and educative episodes as the central activity of a self-renewing life. How this is to be provided is the central question relating to structuring of postsecondary education.

One of the most potent forces toward new educational demands has been the altered relationship between man and knowledge. In a way that was not true before the last generation or two, people have come to perceive organized knowledge as essential to the attainment of almost any significant goal value, whether it be wealth, respect, power, enlightenment, health, or tranquility. As a consequence, a significant fraction of the first, second, and fourth groups have come to have an ambivalent or hostile reaction toward knowledge and expertise. Knowledge is viewed as a significant weapon of the power structure; the knowledge culture is seen as the predominant socializing and selection mechanism of a manipulative, if not repressive, establishment. Thus, a sense of potential access to knowledge has come to seem crucial to success and to survival. A significant amount of the current protest regarding education arises from the belief that, not only does contemporary education poorly equip people to comprehend and cope with their environment, but also the patterns of professionalization, research, and recruitment/socialization--to the power elite, which characterize the educational

system--contribute powerfully to the repression of those who do not make it into the power elite and to the captivity of those who do.

Substantially larger percentages of the population than ever before are capable and desirous of being effective actors in the social process, and unwilling to be among those merely acted upon. There is every reason to assume that their demands will continue to increase, both for an educational experience which gives them a sense of access to knowledge, and for the opening up of a system of sorting and labeling and credentialing, which they view as oppressive.

5d. In some sense, of course, all of life is an educating environment. The nature of the above-mentioned demands for greater diversity of educational opportunity suggests that the more we move deliberately in the direction of all society being an educating community, the more closely will the opportunities meet the demands of diverse groups. Many of the dysfunctional aspects of the present educational system may be traceable to the discontinuity between the school and the larger community. This discontinuity is felt particularly on entrance to the school, where emphasis suddenly shifts from total to cognitive development, and at the high school level for those who are about to enter the "world of work."

5e. The differing demands of diverse groups strongly implies that appropriate content and educational processes will be different for different groups. To whatever extent humans actually tend to follow such a hierarchical sequencing of developmental stages as is suggested by the work of Maslow, Graves, Peck and Havighurst, Loevinger, and others, appropriate educational opportunity may be defined as that which will facilitate the person's moving on to the next stage of development. One implication of this kind of theory is that the individual is a better

chooser of appropriate educational experiences for himself than are the experts. Educational policy structured on the basis of such a premise regarding natural human development would be radically different from traditional policies and would come much closer to satisfying the demands of the first and fourth groups listed above.

5f. The point above regarding "access to knowledge" argues strongly that more attention be given, for the first two groups particularly, to experience with the process of obtaining knowledge. Perhaps nothing would contribute more to the success of education for the poor and disfranchised group than repeated success in the experience of gathering, using, organizing, augmenting, and ultimately disseminating a knowledge base (about their own community, for example) which they perceive as relevant and useful and over which they exercise continuing control.

6. Educate for coping with an uncertain future

The nature of the alternative futures suggests that education that is at all responsive to the two predominant characteristics of the future--uncertainty and rapid change--will emphasize development of a high degree of flexibility and an ability to cope with varied conditions. This implies emphasis on the ability to gain new skills over acquisition of any particular skill; on having access to knowledge over having memorized any particular knowledge; on the development of a basic self reliance over a rigid way of coping with the present world. This perspective would affect all aspects of education. The general curriculum would include heavy emphasis on dealing with wholes, rather than specialities, even from the primary grades. (Some examples are the systems way of thinking about problems, an ecological view of the environment, a holistic history of man on earth, and an alternative futures emphasis in viewing present problems.) Vocational training programs would be completely altered, stressing learning to learn and

probably leaving the acquisition of specific skills to on-the-job training. Higher education studies would stress development of a futures outlook. Recruitment and training of teachers would be altered perhaps most of all, since the other changes are so contingent on the availability of a different type of teacher skills. Emphasis throughout would be on an appropriate balance between structured and self-appropriated, self-motivated learning, and between cognitive and affective-conative development.

6a. What has gone before suggests that education for the future needs, above all, to be based on two complementary concepts. The first is universal access to educational opportunities that will enable persons to live meaningful and dignified lives without direction from the state. The second is education to develop a sense of alternative futures and of participation in choosing the future of the human race and the planet. Because of the diversity of human characteristics, this also implies education toward a pluralistic society in which individual differences are not deplored or resented, but valued. Given the uncertainties of the future, we need to cherish the different standards and life styles of those who live in the "social interstices"; these subcultures may be needed as models.

If any one fact stands out about the world of the future, it is this: There is no such thing anymore as a single-line life work. At all levels and in all areas, we need flexible, multidimensional people. Perhaps no concept would have more effect on educational policies and practices than this, if it were to become a vitally operative goal.

6b. High research priorities are indicated with regard to several areas. The most obvious, perhaps, is the broad area of change and growth in the direction of heightened self image, increased self reliance, greater flexibility, and reduced insecurity. Another is experimental

learning processes that present alternatives to the teacher/student, linear-curriculum, traditional classroom relationship.

6c. Similarly, we need to foster aggressively new institutional trial forms and radical pilot experiments, particularly in the area of teacher training. We need new ways of thinking and perceiving, of organizing and presenting knowledge. The old departmentalized, compartmentalized knowledge presentation is not suitable for education in the future. Because of the rapid obsolescence of job skills, in-service training in all areas, especially in the educational profession, needs to be much more fully developed.

6d. Educational environments in general have been commented on above. At this point, let us focus on what the above analysis seems to indicate for the environment of teacher training.

All we have said points strongly to the proposition that the education of educators should be transdisciplinary, problem-centered, and change-oriented. Very likely it should be restructured to include earlier entry into active teaching and much greater reliance on in-service training. Among emphases to be strengthened might be alternative-futures thinking, the Western intellectual tradition, human development in the broadest sense, development of access to knowledge, and education toward social-aid roles. Particular attention should be given to recruiting and holding the highest caliber persons within educational professions. This implies that the educational environment for future teachers needs to be open, challenging, and humanizing. It also implies that the environment in the schools has to be congenial and conducive to attracting and retaining self confident, highly motivated, humane, high-self-image persons.

Teaching that is responsive to the needs of the future will be much less a matter of purveying information, and much more a matter of asking

questions together. The teacher with a high degree of self knowledge will depend less on his stored external knowledge. He will be unthreatened by an atmosphere of shared learning and mutual respect between "learner" and "teacher." He will be less likely to fear showing his inadequacy or ignorance, less likely to stick to the material he knows, and less likely to be an impediment to the learner's progress. Thus, development of self knowledge would appear to be a highly desirable component of the teacher's preparation. To supply this would require a significant departure from traditional school-of-education environments.

6e. A number of the comments above relate to appropriate content for future-oriented education. One further point deserves special attention.

One of the most serious lacks in secondary and higher education, as viewed from the standpoint of the world macroproblem, is subordination of training in asking fundamental questions to the development of expertise in dealing with lesser questions. For example, consider the historic problems of the early residents on these shores and the solutions adopted--removing the Indians by liquidation and confinement to reservations and getting agricultural work done by importing slaves. The more fundamental problem of human justice was slighted, and the consequences have affected the entire history of the nation. Today our technological and environmental problems seem serious enough. But if we approach the secondary problem of pollution without due attention to the underlying fundamental problem of the totality of human needs, or the problems of applying biotechnology to "improve" persons or society without adequate attention to the fundamental problem of individual rights, experience has shown that we generate "unanticipated consequences." At this point in history, particularly, development of this awareness of fundamental questions is an essential ingredient in the education of the society's leaders.

6f. Much of what has been said above argues for educational processes that develop self growth and self esteem, inner security to tolerate uncertainty and ambiguity, futures orientation, confidence in ability to acquire knowledge, holistic perspectives, and problem-solving competence.

Concluding remarks

By way of summary, we want to emphasize again the caution about these findings being tentative and preliminary. Yet if the alternative future histories are at all on the mark, the fact that half of the year-2000 states are highly authoritarian in character indicates one of the more likely dangers ahead. Since a good share of the other paths have unpleasant aspects of other kinds, the overall message is clear. To avoid undesirable futures will require vision, attention, and dedication. It is not yet time to redesign education for ecstatic individuals in a carefree world.

It cannot be claimed that the foregoing analysis wherein the roots of the "world macroproblem" are found in "pathogenic premises" is ineluctably demonstrated, although much evidence supports it. To the extent an individual finds the analysis convincing, he will conclude that the paramount educational task for the developed world is the altering of the dominant basic premises, perceptions, images, and values of the industrialized culture, and that the paramount task for the nation is the development of a sense of purpose and unity in facing the problems and opportunities of the future. To that extent also, he will see it as essential that we re-examine all our present educational institutions, practices, and commitments to determine how their priorities are altered in view of these future outlooks.

Aspects of the educational component of societal tasks

Societal task	a. New Conceptualizations	b. Research and development	c. Institutions	d. Educational environments	e. Program Content, Resources	f. Processes
1. Make direct attack on aspects of the world macroproblem						
2. Control technological development and application						
3. Alter values, perceptions, and premises						
4. Establish a new sense of national purpose						
5. Meet the educational demands of varied groups						
6. Educate for coping with an uncertain future						

Fig. 3 Matrix of social tasks and educational components